

Title (en)  
BICYCLE CHAIN RINGS WITH RAMPS

Title (de)  
FAHRRADKETTENRINGE MIT RAMPEN

Title (fr)  
PLATEAUX DE BICYCLETTE À RAMPES

Publication  
**EP 2334955 A4 20120118 (EN)**

Application  
**EP 09814912 A 20090918**

Priority  
• US 2009005243 W 20090918  
• US 28433908 A 20080918

Abstract (en)  
[origin: US2009111631A1] Embodiments of the present invention include bicycle chain rings for bicycles having specially shaped ramps, tapers and profiled teeth for improved shifting performance. Additional embodiments of the bicycle chain rings of the present invention may be configured with one or more additional features formed within the chain rings including a transition slide, a tapered ramp face, a ramp bridge, a ramp lead, a trailing transition slide and a wear pin.

IPC 8 full level  
**F16H 55/30** (2006.01); **B62M 9/10** (2006.01)

CPC (source: EP US)  
**B62M 9/105** (2013.01 - EP US); **B62M 9/12** (2013.01 - US); **F16H 55/08** (2013.01 - US); **F16H 55/303** (2013.01 - US)

Citation (search report)  
• [XAI] EP 1767449 A2 20070328 - WICKLIFFE CHRISTOPHER ALAN [US]  
• [XI] US 5738603 A 19980414 - SCHMIDT FRANK [DE], et al  
• [XAI] US 5464373 A 19951107 - LENG TONY [TW]  
• [IA] US 5876296 A 19990302 - HSU PAI-HSIANG [TW], et al  
• [I] US 5413534 A 19950509 - NAGANO MASASHI [JP]  
• [A] EP 0671316 A1 19950913 - IND TECH RES INST [TW]  
• See references of WO 2010033243A1

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

DOCDB simple family (publication)  
**US 2009111631 A1 20090430; US 8092329 B2 20120110**; EP 2334955 A1 20110622; EP 2334955 A4 20120118; US 10711875 B2 20200714; US 2012202633 A1 20120809; US 2013331210 A1 20131212; US 2014371014 A1 20141218; US 2018031105 A1 20180201; US 2020340571 A1 20201029; US 8506436 B2 20130813; US 8821329 B2 20140902; US 9791033 B2 20171017; WO 2010033243 A1 20100325

DOCDB simple family (application)  
**US 28433908 A 20080918**; EP 09814912 A 20090918; US 2009005243 W 20090918; US 201113338181 A 20111227; US 201313966158 A 20130813; US 201414473170 A 20140829; US 201715782084 A 20171012; US 202016927040 A 20200713